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ABSTRACT

The decision to renovate or replace a school building is the starting point for a long and challenging journey with many phases: planning, development, and project delivery and construction. Each phase requires different levels of expertise, skills, and activities. The challenge of a rural facility project is to find leadership to provide guidance through all phases of the project. This chapter describes an approach to project management that can help the school district leadership to successfully interact with the construction management team while facilitating open, respectful, and effective communication with local stakeholders. This approach--the project cost management system (PCMS)--has proved successful in rural school construction projects in Nebraska, Iowa, and South Dakota. Key to the success of this approach is a project manager with a good understanding of community needs and a good grasp of the technical aspects of school facility construction. This individual has responsibility for both developing community consensus and managing the technical details of the construction process. The various phases of PCMS are described, along with the role of the project manager in each: (1) the planning process (forming a facilities study committee, identifying needs related to building code violations and to new educational models and technologies, and seeking broad-based input from staff and community); (2) design workshops to develop the plan; (3) developing community consensus; (4) bond referendum campaign; and (5) project delivery and construction. (SV)

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CHAPTER 7

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Managing the Rural School Facility Construction Process

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The decision to renovate or replace a school building is the starting point for a long and challenging journey. The journey includes many phases: planning, development, and project delivery and construction. Each phase requires different levels of expertise, skills, and activities. The challenge of a rural facility project is to find leadership to provide guidance through each phase of the project.

This chapter illustrates an approach to project management that can help the leadership of a school district successfully interact with the construction management team while facilitating open, respectful, and effective communication with local stakeholders. This approach, called the *project cost management system* (PCMS), has proven successful in rural school construction projects throughout Nebraska, Iowa, and South Dakota.[1] Key to the success of this approach is a project manager who has a good understanding of community needs and a good grasp of the technical aspects of school facility construction. This individual has responsibility for both developing community consensus and managing the technical details of the construction process. He or she provides a sense of continuity to the project, a key element often lacking in other approaches.

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A Brief Overview of the Project Cost Management System

The first step in the PCMS approach to school facility improvement is to identify a project manager who will oversee all phases of the process. The project manager helps the school district and community consider their current and future needs, while developing a long-range, education-driven master plan for school facilities. The project manager also works with school district staff and committees in a series of workshops to develop plans and proposals, and may include conducting surveys and interviews to get input from them on curriculum-based needs. In addition, the project manager meets with community groups to develop community-based priorities. Information collected from all of these sources provides the basis for programming decisions and ultimately will lead to optimum facilities designs that receive support from taxpayers.

Once a master plan has been agreed upon, the project manager identifies appropriate next steps to complete the plan. After project phases have been identified and drafted, the project manager returns to all groups for more detailed feedback regarding stages of the planning and construction process.

When the project has been funded and the schematics and basic designs for the buildings are developed, the project manager assists in developing the bidding documents and ensures that there will be full competition for all aspects of the project from qualified architectural, engineering, and construction firms.

Once construction begins, the project manager represents the school district by monitoring the architect, the contractor, and the overall project. The project manager gives the district monthly construction project reports that include schematic milestones, a complete budget analysis, and photographic records of construction progress throughout the previous month. These reports are presented at open school board meetings to keep the district and public constantly abreast of progress.

This is the basic outline of the project cost management system. A fuller explanation follows.

The Planning Process

Various circumstances could motivate a school board to discuss what the future holds for the district's facilities: a visit from the fire

marshal, a newly enrolled student confined to a wheelchair, a recent asbestos report, a cracking foundation, or Title IX requirements. Or the community or students may signal their desire for facilities they can be proud of, feel safe in, and where contemporary curriculum can be effectively delivered. At some point the community decides they can provide something better for their children.

The school board is aware that the words "bond issue" and "tax levy" are not popular among rural residents, but they also know improvements must be made. The first choice the district must make is whether to repair or replace their school facilities, depending on the context of available resources. Although raising taxes is never anyone's first choice, often it can be accepted when the public understands the seriousness of the need.

Forming a facilities study committee. Once the school board has decided to investigate the possibility of new school construction, it usually chooses a volunteer group of community and staff members to form a facilities study committee. Committee members need not be certain supporters, but instead, simply citizens interested in education. As many segments of the community as possible should be represented, including professionals, laborers, small business owners, senior citizens, parents, and others. This group, along with the district staff, should go through a series of visioning sessions. The objective of this process is to identify facilities needs and to answer the following key question: What will we need to make this district effective and efficient for the twenty-first century? The goal is to devise a plan that provides state-of-the-art educational opportunities that meet the needs of students and give back to the community. When finished, the school facilities can help enhance the overall image of the district, which can contribute to keeping district graduates in the area to raise their families and to encouraging new people to move into the area.

The facilities study committee should tour current facilities. Although some committee members may be in the buildings every day, they may not be aware of certain code requirements or structural damage, which the project manager or other expert guide can point out during the tour. These tours tend to be eye openers for the members of the facilities study committee. So often the view looks fine from the street, and no one realizes there are problems that need

to be addressed. That perception changes when people see the view from the students' seats.

Identifying needs Frequently, school code violations exist that must be corrected just to keep particular schools open. These issues should be given first priority, but then the committee should move beyond short-term repairs and solutions and consider making long-term changes that could enhance teaching and learning.

School and classroom designs have changed dramatically over the past 20 years, having reached new levels of sophistication to support advances in instructional methodology.[2] One observer compares our old schools to old locomotives chugging incongruously through a high-tech landscape.[3]

Research suggests that the transfer of learning is enhanced when the learning situation and the situation for which a student is being educated are similar.[4] However, we have allowed our schools to remain in the past, while our children must be educated for the future. Consequently, the schools are mismatched with today's children.[5] Older educational models called for children to be passive instead of active, incapable instead of capable, teacher-directed instead of self-directed, acquiescent instead of assertive, and dependent instead of independent.[6] However, the new model of learning is active, interactive, and integrated, rather than passive, isolated, and fragmented.[7] Today's educational facilities offer space for cooperative learning instead of desks placed rigidly in rows across the classroom. Today's teachers want students to explore, work in cooperative groups, get involved with hands-on activities, and discuss among themselves as they would in the real world. Children will not always have a teacher directing them from the front of a room. Thus, they need to develop self-sufficiency in a student-centered classroom, not a teacher-directed domain. The teacher in this arrangement becomes a valued member of a team, not the focus of the classroom.[8]

Technology issues are a major concern when considering facilities redesign or new facilities construction. Marvin J. Cetron and Thomas O'Toole have written extensively on the role of technology in accelerating the pace of change.[9] Networking and computer access for every student and teacher are now required for success in the twenty-first century. Education must develop students' technological competence to enable them to succeed in our electronically sophisticated culture.[10]

Code requirements, changing instructional methods and technologies, and other educational considerations should be identified by the facilities study committee, but that is only the beginning.

Seeking input. For a school facilities project to meet the needs of the community and cultivate broad-based support, broad-based staff and community input must be gathered. Important input comes from staff surveys, which the facilities study committee can distribute to all school district staff members, certified and noncertified. Staff feedback gathered from the surveys is shared with committee and school board members. People who work daily on the "front lines" have important perspectives. Survey responses help answer the question, What is needed to provide the highest quality education for our students? Teachers generally make do with what they have and go about the business of educating children as best they can. But when they have the opportunity to help design the structure of their classrooms, they begin to examine their instructional practices and are empowered to change.[11]

The facilities study committee should also seek input about community needs. Rural school buildings serve dual purposes: they must be conducive to learning and encourage community use. Creating such a shared facility magnifies school and community pride. Usually the public appreciates access to gyms, fitness centers, computer labs, assembly areas (such as an auditorium), and a commons area. Most importantly, as Doug Archbald explains, greater community involvement will likely increase the amount of learning taking place at home because parents will experience tangible connections to the school. Likewise, greater community involvement helps create a school environment in which children feel they are a part of a group that is interested in their overall well-being.[12] Facilities designed to serve so many community functions may be more expensive. However, residents also tend to feel they are getting something valuable for their tax dollars.[13] In rural areas, there usually are no alternative gyms or auditoriums for community use; school is the only option. Often teachers also appreciate these public opportunities, provided the academic wings are secured.

Other input can be obtained by asking teachers, staff, and school board members to compile their "dream lists." Some people have grown accustomed to getting by with less and need to tour recently

completed schools to see what is possible. At one time there may have been a question about whether electricity is a luxury or a necessity. Today some people ask comparable questions about computers and small group spaces.

Compiling dream lists, however, has to be tempered by budget realities. Information about tax levy options available to the district should be provided to facilities study committee members. Using that information, the project manager can prepare several options that meet a variety of "dreams" or needs within the constraints of a bond issue. Many dreams aren't so expensive when paired with others, or done during a large renovation project.

Committee members should investigate and compare the costs of renovating existing buildings with the costs of new construction. In an atmosphere of rising taxes and taxpayer resistance to the construction of new school buildings, it may be wise to explore the possibilities for making existing buildings more educationally effective.[14] Often the old school building is considered such a mainstay in the community that people resist losing it. Both options—renovation and new construction—should be presented, discussed, and analyzed thoroughly by the facilities study committee.

To ensure successful project delivery, there must be an achievable plan. An important aspect of this plan is understanding the operational costs of new or remodeled facilities. Districts must have a clear idea that they can afford to operate facilities they plan to build. This includes not just staffing costs but maintenance costs, as well.

The Development Process

The facilities study committee presents its findings to the school board and disbands. With board approval the development phase begins. The project manager compiles information from focus groups, staff surveys, and community input and develops a conceptual building plan that becomes the starting point for a series of design workshops. The design workshops take place over a four- to eight-month period. The workshops initially involve administrators, department heads, and team leaders, then usually expand to include the entire staff. Early meetings focus broadly on the "big picture," while meetings later in the first month focus on specific issues. Discussions during this period help refine the general organizational plan, identi-

fying academic, activity, and community-use areas. A good plan needs this solid foundation from which to build, and leaders should seek approval from all parties involved. This basic plan will set the parameters for each of the zones of the building.

The second and third months are when the separate zones of the building are further refined and the rest of the staff becomes involved. This is an exciting, dynamic period because, for the first time, teachers are asked to design their ideal teaching spaces. The limitations that they have learned to deal with are lifted, along with the artificial constraints that have been placed on their creativity. Unlike some urban or suburban teachers, who have opportunities to see innovations in magnet or newly constructed schools, many rural teachers' knowledge of current educational trends is limited to what takes place in their community or surrounding communities. For this reason, it is important that teachers have access to tours of other facilities, videos of new facilities, and other educational resources as they participate in the planning process.

The project manager encourages the participants to consider a wide range of learning modes, including self-directed and individually supported group learning. Participants are also encouraged to include spaces and opportunities for lifelong and continuous learning, including areas for physical, mental, and spiritual health.[15]

A crucial step at the end of each stage is reporting to the school board and other groups involved in the process. This is a time-consuming task, but well worth the effort because everyone stays informed, and it minimizes the changes needed late in the design or construction phase. The end result of the brainstorming, tours, videos, and research should be a school design that incorporates many innovative ideas, such as small group learning areas, classroom walls that move to create large group areas, and integrated computer networks. Distance learning classrooms, physical fitness labs, multipurpose community rooms, and large media centers are typically zoned to allow use of these areas by the community after hours.

When this process is done well, the new or remodeled school is able to reestablish its role as the focal point of the community and to strengthen the bond between the community and its children. This vibrant interaction can make the community young again and encourage young people to return to their rural roots after college. These

goals may seem too idealistic, but even if only some are attained, a positive impact is made on the rural community and school. For too long the design community has had ample work in urban areas and tended to neglect rural schools. Rural schools need not be just cookie cutter copies of urban schools, but vital centers that contribute to the quality of life of rural communities.

Developing Community Consensus

The most important issue in the facilities planning process is developing and nurturing community consensus. Educational change is not created by new tools alone. Real change happens when the community is brought together to collectively create a shared vision for redefining classroom learning.[16] Because an engaged community is more likely to support a bond referendum, it is important that the community be actively involved and fully informed throughout the entire process. Broad-based community input should come early in the planning process.

There are several ways to keep the community engaged. Initially, this can be accomplished with the school board, community, and staff focus groups, through which staff and community priorities are synthesized into a master plan for school facilities. Another technique is to keep the community informed as the facilities study and planning progresses. Newsletters, radio announcements, and strategic newspaper articles all provide information and opportunities for community response. Information should be clearly defined and easily understood. Issuing short, frequent press releases that highlight key issues is a useful tactic.

Public meetings held in workshop formats have also proven successful. Workshops use local experts to deliver the message instead of out-of-town consultants. This is only possible if community representatives are willing to lead rather than follow. Local experts, including a school board team, a teacher and administrator team, a financial leader team, and a design team can provide information about different aspects of the school facility planning process. These teams first listen to community members' questions and concerns, then discuss topics in team members' areas of expertise. Teachers and administrators listen and discuss their views on educational trends and facility needs. School board members can discuss school funding

issues. The local banker is in a perfect position to discuss bond markets, interest rates, and the benefits and deficits of long-term financing. The design team can discuss trends and possible solutions that allow for current program needs and flexibility for future needs. The input is one-to-one, a perfect way to truly listen and educate.

The Bond Referendum Campaign

Communication is the key to successful rural community bond initiatives. The best approach is to keep the message simple, communicate clearly, and inform the public instead of selling the public. It is very important to earn the trust of voting community members. One way to do this is to provide open, honest channels of communication. An important part of this strategy is finding community members who are willing to serve on a communications committee. Once identified, an active, talented group of community volunteers can play an important role in communicating information and winning community trust. Volunteers for bond referendum campaigns are not easily found or convinced to serve, but there are usually a few community members who feel passionately about the issue. These volunteers must be willing and able to present factual information clearly and then allow the public to settle the issue.

Referenda are political and therefore subject to the broad range of challenges associated with the general election process, such as frequent accusations of untruth, underestimations of costs, overestimations of costs, overestimations of needs, and hidden critical information. The only way to counteract these accusations is to communicate openly, clearly, and consistently throughout the campaign. To keep the message consistent, it is often best to have only one informational brochure, rather than several generations of brochures. The same brochure should also be used as a mailer. The message should be simple and focus on the educational issues, not the building. The brochure and other materials should emphasize the educational benefits of an upgraded school facility, not just the "gee-whiz" aspects of a new building. In order to effectively get the message across, volunteers should plan to do door-to-door canvassing, telephoning, and public meetings, if necessary. The end result arrives the night of the referendum with the final vote tally.

The Project Delivery and Construction Phase

Once the plan is in place and the funding has been approved, the project delivery and construction phase begins. District officials will have to make crucial decisions about personnel and materials costs. An experienced project manager can provide many important services during this phase of the project. While the school board will ultimately make the final decision about who to hire as a contractor, the project manager plays an important role in researching and making recommendations. In most cases, the contractor will be chosen by the board with input from the project manager. The project manager will also advise the board regarding construction costs.

School districts usually benefit when bidding is highly competitive. A project manager who acts in the district's best interest is open to a variety of bidding strategies and seeks to increase competition. Bidding strategies that carve up the project into smaller, more manageable chunks may be useful in some communities.

Once the plan for the construction process has been approved and the architect and contractor have been chosen, the actual construction of the building begins. The best way to ensure delivery is to have complete plans, with clear and consistent specifications. The construction process actually requires a great amount of technical management. This is where the project manager can once again make a great contribution. The project manager is the eyes, ears, and voice of the owner (which is the community), and has a vested interest in making sure the project is delivered as promised. We have found that employing a project manager in this process has frequently reduced unexpected change orders throughout the construction period. With experienced project management, the final product is more likely to meet the specifications of the plan and come in with few budget problems.

Conclusion

The process of designing and building a rural school facility is long and complicated. The school design must be developed with community input and must reflect school and community educational needs, while taking into account the limitations of the district's budget.

The authors have had a great deal of success with the project cost management system outlined in this chapter. A key element in this

approach is the project manager, a technically skilled and knowledgeable individual who has experience with the school facility design and construction process and is willing to protect the school district's interest. This individual provides continuity and an institutional memory for the entire facility construction process. A successful school facility construction or renovation process can transform an entire rural community and school district. Designing effective rural schools is a challenge that provides lasting rewards when community priorities have been satisfied.

Notes

1. This process was pioneered by RAPM, Inc., located in Omaha, Nebraska.
2. Castaldi, *Educational Facilities.*
3. Dixon, "Future Schools and How to Get There From Here," 360-65.
4. Castaldi, *Educational Facilities.*
5. Strommen and Lincoln, "Constructivism, Technology, and the Future of Classroom Learning."
6. Dixon, "Future Schools and How to Get There From Here."
7. Lenox and Walker, "Information Literacy."
8. Strommen and Lincoln, "Constructivism, Technology, and the Future of Classroom Learning."
9. Cetron and O'Toole, *Encounters with the Future.*
10. See note 5.
11. Merwin, "Classroom of the Future."
12. Archbald, "Restructuring in the Eyes of Practitioners."
13. Day, "Trends in School Design."
14. Castaldi, *Educational Facilities.*
15. Banathy, "Systems Design in Education."
16. Riel, "Building a New Foundation for Global Communities."

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